FINAL PROJECT
DESIGN OPTIMIZATION OF SOLAR CELLS USING MICROCONTROLLER BASED TRANSISTOR 2N3055 USED ATMEGA 16

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ABSTRAK

The objective of the design optimization of solar cells using 2N3055 transistors former ATmega 16 microcontroller based solar cells is as a substitute for the source of electrical energy using electronic waste using directional solar cells. Making this tool to find out the performance of the components that are used as the main constituent of this tool.

The design optimization of solar cells using the former 2N3055 transistor based microcontroller ATmega 16 using a light sensor (LDR) as a detector of the sun, and servo motors to drive the transistor in order to receive maximum sunlight. This tool works when the light sensor (LDR) detects the presence of light and then it will run the servo motors are used to drive the transistor in order to produce a voltage. The method used in solar cell design optimization using ATmega microcontroller based electronic waste 16 is an experimental method, the method is obtained design technique that consists of several stages: (1) identification of requirements, (2) Needs Analysis, (3) design tools hardware and software, (4) Preparation of equipment, (5) Testing and Tools (6) Operational Equipment. The hardware consists of (1) The minimum ATmega16 as the main controller, (2) LDR as light sensor is used to find the maximum light, (3) servo motor is used as a driver transistor (4) LCD as the viewer direction and angle of the motor goal servo.

Based on the results of testing that has been done, it can be concluded that the tool design optimization of solar cells using the former 2N3055 transistor based microcontroller ATmega 16 can work in accordance with the working principles designed. It is shown that the transistor can produce a voltage of 5.6 Vdc, and a current of 0.00028 A was more than expected is 5.0 Vdc voltage and current 0.00025.

Keywords: LDR light sensor, ATmega16, servo motor, 2N3055 transistors, solar cells